

Book Reviews

THE ORIGINS OF NATIVE AMERICANS: EVIDENCE FROM ANTHROPOLOGICAL GENETICS. By Michael H. Crawford. New York: Cambridge University Press. 1998. 308 pp. ISBN 0-521-59280-1. \$64.95 (cloth).

Native American origins have certainly been a much-debated topic over the past few years and have gained recent attention with the discovery of "Kennewick Man" in Washington state. Unfortunately, much of the media hype has missed the most important story: what happened to the descendants of those first colonists after the Pleistocene? Despite its title (which was apparently a publisher's decision and not the author's), this volume does not solely focus on the questions of Native American origins. Instead, it provides a sweeping overview of Native American biology that allows the reader to understand how events since colonization have shaped genetic diversity among native peoples. The book is an updated version of an earlier work, *Antropología Biológica de los Indios Americanos*, which was released in 1992 for the World's Fair in Seville, Spain. In *The Origins of Native Americans*, Crawford takes a more narrow view, focusing on concepts and issues related to the genetics of North American and (to a lesser degree) South American natives. In doing so, he illustrates these concepts with examples from his own work among black Caribs of the Caribbean, the Tlaxcaltecs of Mexico, Eskimos of St. Lawrence Island, and native Siberian populations.

The volume is divided into seven chapters, which cover origins, demography, genetic variation, population structure, and morphological variation of Native Americans, and ends with an interesting review of the impact of European colonization on "the survivors." In the first chapter, "The Origins of Native Americans," Crawford examines earlier and later scientific theories of when and how humans colonized the New World. He

also introduces archaeological and geological evidence for the timing and route of colonization from Siberia and takes a pointed and critical look at the three-wave migration theories proposed by Joseph Greenberg and his colleagues. The second and third chapters examine population size and demographic history, with emphasis on the effects of European contact and pre-Columbian disease. I found the discussion of Tlaxcaltecan demography and migration to be particularly interesting. In "Genetic Variation in Contemporary Populations of the Americas," Crawford is clearly in his element. He discusses sample reliability and accuracy and then reviews past and present work in traditional markers, immunoglobulins, histocompatibility systems, and DNA polymorphisms. He then goes on in the chapter entitled "Population Structure of Native Americans" to show how genetic variation can be used to examine the effects of genetic drift, gene flow, and other microevolutionary processes. The penultimate chapter presents quantitative traits and morphological studies among Native Americans including anthropometric, dermatoglyphic, and dental data. This is particularly refreshing since most volumes on genetics tend to ignore polygenic traits and downplay their utility in understanding evolutionary history. The volume concludes with the epidemiology of postcontact populations and evolutionary significance of diseases affecting living Native Americans on and off the reservation.

Crawford's quality of scholarship and breadth of knowledge clearly shine through this work. His mastery of such a wide range of subjects is evident, and his ability to use detailed examples from his research in the context of a broader range of previous work was refreshing. There were, however, some minor distractions worth noting. The introductory chapter discussion of craniometric analysis focuses on the work of Howells and does not include a review of the research on small samples of Paleoindian remains available for study. The omission may reflect the author's repeated (and rightful) criticism of

the use of small samples for research (see Chapter 4 and p. 228) and probably stands out because of the recent media attention to Paleoindians. The chapters on demography are focused more on classic research in paleodemography and population history than on more recent work, and there is no discussion of mtDNA mismatch and intermatch distributions, which could provide evidence to support the notion of a demic expansion of early populations in the Americas.

Overall, *The Origins of Native Americans: Evidence from Anthropological Genetics* provides an extremely useful and insightful

examination of Native American biology. The volume will certainly be of interest to those outside the field of anthropological genetics and should serve as a reference work for those in the field. The breadth of this work and Crawford's ability to use Native American biology to illustrate important evolutionary concepts make this an excellent addition to the bookshelves of those working with past or present populations of the Americas.

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PHENOTYPIC EVOLUTION: A REACTION NORM PERSPECTIVE. By Carl D. Schlichting and Massimo Pigliucci. Sunderland, MA: Sinauer. 1998. 387 pp. ISBN 0-87893-799-4. \$38.95 (paper).

This is a very good book on a timely topic. Biological anthropologists wanting a modern understanding of the role of genes in phenotypic variation and evolution would benefit from reading it. This is especially important because in human genetics we are in an age of strong expectations of simple determinative relationships between genotypes and phenotypes. These are driven by various motives, of glory and of gain, as powerful new methods raise hopes for both. Excess genetic determinism has the potential academic consequence of the acceptance of oversimplified if not highly unrealistic theories and assertions about complex traits (like behavior traits). There are also practical consequences, in the form of the funding devoted to biomedical genetics that inevitably drains funds from other avenues of research.

The evolutionary or modern synthesis was a proclamation of the middle of this century that defined biology as essentially a matter of genetic information, evolution as change in allele frequencies, and population genetics as the formal theoretical support for

biology. In subsequent decades this was extended to a further genetic determinism by the dogma that the genome is the code book for life and that the flow of biological information is from genotype to phenotype via the one-gene one-one protein model. Virtually all biological anthropologists who were seriously trained in evolutionary principles beyond the hand-waving level were indoctrinated by the modern synthesis (and the problem could even be worse among hand-wavers). Indeed, until recently it was difficult to find texts or even much mainline material that was not based on this tacit formalization of biology.

However, the world does not have to follow theories proclaimed in an at least partly political coup d'etat. A proper understanding of biology requires an accurate understanding of the genetic basis of interesting phenotypes. Thanks to advances in genetic technology, several areas of biology are making a comeback after having been banished by the modern synthesis as unimportant, unscientific, or irrelevant. This book presents a more modern view than we can usually find in the journals or most textbooks. Anthropologists whose major interest is in complex traits, such as the skeleton, behavior, or growth patterns, will find in this book much of value. Genes are placed in context as but one of the factors, acting in many ways, by